

MASTER OF SCIENCE IN MANAGEMENT

SOCIOECONOMIC STATUS AND PERFORMANCE IN THE U.S. ARMY AND U.S. MARINE CORPS

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The purpose of this study was to examine socioeconomic status (SES) of recruits in the Army and Marine Corps and to analyze the relationship between a recruit's SES background and his or her performance in the military over time. Data for this study were obtained from three sources: the Department of Defense Survey of Recruit Socioeconomic Backgrounds (SES survey), Military Entrance Processing Command enlisted cohort files, and personnel data files provided by the Army and Marine Corps. After merging these data files, the SES survey respondents were tracked longitudinally, and several analyses were undertaken to assess the relationship between SES and performance in the military. The results of this research show that recruits in both services come from slightly lower SES backgrounds than do youths in the general population; and, most of this difference can be explained by the fact that soldiers and Marines are consistently underrepresented in the highest measures or correlates of SES and overrepresented in the lowest ones. Additionally, it was found that, while SES is not a strong predictor of first-term enlisted attrition in either service, it does explain differences in recruits' performance on-the-job in the Marine Corps. Further research is recommended, especially that which incorporates supervisors' rating of military performance.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Socio-Economic Status (SES), Attrition, Performance, All-Volunteer Force (AVF)

A TRADEOFF ANALYSIS OF JUST-IN-TIME AND NON JUST-IN-TIME INVENTORY WITH TRANSPORTATION RAMIFICATIONS

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The purpose of this research is to investigate when a Just-In-Time (JIT) inventory management technique is a worthwhile approach to managing inventories. Some experts in the field maintain that the additional transportation costs derived from using JIT and its costs due to frequent shipping is more than offset by the reduction in inventory levels. In this study a simulation is developed using the cost structure of Naval Air Station Lemoore for managing a selected group of items. Lemoore is considered the Inventory Control Point and the Stock Point for those items. Research results indicate that despite all the advantages of using JIT, JIT is not always the lowest cost approach. Recommendations are that inventory

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managers delineate the associated costs using each technique and perform a thorough analysis that compares the two alternatives, and that JIT is not a general solution leading to the lowest cost for management of all inventory items.

DoD KEY TECHNOLOGY AREAS: Modeling and Simulation, Other (Inventory Management)

KEYWORDS: Just-In-Time, Transportation Cost, Holding Cost, Break-Even Point, Trade-off Analysis, Contrasting Cost Structure

AN ANALYSIS OF THE MANPOWER COSTS ASSOCIATED WITH THE HELICOPTER AIR WING COMMANDER CONCEPT

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This thesis presents an analysis and comparison of manpower costs of three options for the United States Navy Helicopter force structure through the year 2020. The first option, the basic plan, leaves the force structure as it is today. The second option assumes the mission to support the Military Sealift Command (MSC) is outsourced and combines the Helicopter Combat Support (HC) and Helicopter Antisubmarine Warfare (HS) communities into a community referred to as HSC. The third option realigns the force along missions performed by the SH-60R and CH-60 under a Helicopter Air Wing Commander (HAWC). All three options support the requirements set forth in the Helo Master Plan (HMP) and are based on the acquisition of the CH-60 helicopter along with the upgrade of all SH-60Bs and SH-60Fs to SH-60Rs. The analysis involved developing manning levels, by pay grade, for the three options and determining the differences in those manning levels. Manpower costs were allocated to the total personnel requirements, and differences in costs among the options were calculated. The manpower cost associated with the basic plan set forth in the HMP is projected to be \$575 million per year. Because the HSC option does not support the MSC mission, it has the lowest annual projected manpower cost of \$531 million. When a factor accounting for the MSC requirement is added to compare the three manning structures on a consistent basis, the annual HSC option cost is \$579 million. The HAWC concept manpower cost is \$568 million per year.

DoD KEY TECHNOLOGY AREAS: Air Vehicles, Manpower, Personnel, and Training

KEYWORDS: Blackhawk, Seahawk, CH-60, SH-60, Helo Master Plan, HAWC

COMPARATIVE ANALYSIS OF BENEFITS RECEIVED FROM NAVAL AIR STATION SEARCH AND RESCUE (SAR) MISSION

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Outsourcing is one method the Department of Defense is actively pursuing in order to cut costs and fund its planned modernization. This thesis investigates the question of whether the U.S. Navy should outsource the SAR mission at Naval Air Stations. The overarching question of whether or not SAR is an “inherently governmental” function was considered as was the alternative possibility of competition, if it were a “commercial” function.

This thesis is designed to complement other ongoing analyses by concentrating on the non-direct cost issues. A direct cost analysis of this outsourcing initiative is not conducted in this thesis. This thesis, therefore, examines the gross benefits

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received by the U.S. Navy as a result of the SAR mission at Naval Air Stations. These benefits were categorized for analysis as personnel rotation-base, personnel experience-base, mission related and public related.

A Decision Support System Generator using the Analytical Hierarchy Process was introduced in the study as an experimental methodology for evaluating the benefits received by the Navy. Consistent results were obtained from two separate groups and insights were obtained for future improvements in these experimental techniques. There is also a discussion of how the Analytical Hierarchy Process might be extended to evaluate net benefits (that is, benefits minus costs) to the Navy.

DoD KEY TECHNOLOGY AREA: Modeling and Simulation

KEYWORDS: Outsourcing, Search and Rescue, Decision Support System Generator, Analytical Hierarchy Process, Military Sealift Command, U.S. Antarctic Research Program

MODELING DEPARTMENT OF DEFENSE CONTROLLED ATMOSPHERE TRANSHIPMENTS FOR FORWARD DEPLOYED FORCES

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The objective of this thesis is to explore the cost savings, product quality improvement, and process efficiencies that can be realized by the integrated design and application of an innovative logistics system for the purchase and transshipment of fresh fruits and vegetables (FFV) to forward deployed units.

The expanding global marketplace, strategic partnerships with private industry, aggressive utilization of commercial-off-the-shelf (COTS) technology, and an aggregate understanding of the logistics pipeline process will enable the Department of Defense (DoD) logistician to provide the customer with a wider variety of fresher, higher quality products, while exploiting monetary savings through competitive pricing, lower transportation costs, and reduced product handling losses and damage.

The aggressive application of this process can result in the wholesale shift of the current operational paradigm with regards to the support of forward deployed forces, from the sea. Combat Logistic Forces will have increased flexibility for scheduling and ultimately expanding their operational capability, remaining at sea for longer periods of time, carrying more product, and better serving the warfighter.

A summary of findings is provided with recommendations for further research into specific applications of technologies, training, and existing processes.

DoD KEY TECHNOLOGY AREAS: Other (Clothing, Textiles, and Food)

KEYWORDS: Fresh Fruit and Vegetables, Logistics, Transportation

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AN ASSESSMENT OF THE SHIPBOARD TRAINING EFFECTIVENESS OF THE INTEGRATED DAMAGE CONTROL TRAINING TECHNOLOGY (IDCTT) VERSION 3.0

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The ability of a ship's crew to control damage is a critical measure of readiness for U.S. Navy ships. Proficiency in this area is largely a function of routine shipboard training. Since damage control skills tend to be perishable if not continuously practiced, shipboard personnel must have an effective means of exercising damage control skills. Computer-based technologies that utilize the advantages of interactive courseware (ICW) present training opportunities that challenge the traditional methods of shipboard training. The Integrated Damage Control Training Technology (IDCTT) is an application of ICW that allows shipboard repair teams to exercise their damage control skills continuously. The trainer was installed onboard *USS Harpers Ferry* (LSD-49) and evaluated as a stand-alone training device through the administration of opinion surveys then compared to various aspects of full-scale drills with a standardized performance evaluation system.

Upon conclusion of this study, the shipboard IDCTT was found to be an effective shipboard training device that saves time. Additionally, it has significant cross-training and team-building qualities that integrate well into an existing damage control training program. Recommendations of this study include the implementation of software-related troubleshooting training for fleet technicians and logistical support associated with commercial-off-the-shelf (COTS) computer-based training equipment.

DoD KEY TECHNOLOGICAL AREA: Manpower, Personnel, and Training

KEYWORDS: Damage Control, Interactive Courseware, Training Technology

FINANCIAL ANALYSIS OF OPERATING AND SUPPORT COSTS FOR H-3 AIRCRAFT VERSUS CH-60 AIRCRAFT TO COMPLETE HELICOPTER COMBAT SUPPORT MISSIONS

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The United States Navy's aging fleet of H-3 aircraft, that are used to complete helicopter combat support missions, will eventually be replaced by the CH-60. The CH-60 will be able to successfully complete the missions currently being performed by the H-3 and provide some additional capabilities. The CH-60 helicopter will be less expensive to operate, in terms of operating and support costs, than the H-3 helicopter. By accelerating the replacement schedule by eight years, 292.06 million dollars in operating and support costs can be saved. Once the CH-60 has fully replaced the navy's H-3 fleet, there will be an annual operating and support cost decrease of 36.508 million dollars needed to complete the helicopter combat support missions currently being performed by the H-3s. The sooner this replacement can be accomplished, the greater the potential to save operating and support costs.

DoD KEY TECHNOLOGY AREA: Air Vehicles

KEYWORDS: Helicopter, Operating and Support Costs, CH-60, Helicopter Combat Support

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FEMALE RECRUITS AND THE UNITED STATES MARINE CORPS: THE TRANSFORMATION PROCESS

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This thesis examines initial military training of women in Marine Corps boot camp. The study focuses on changes implemented in 1996 and applied during four phases of the Commandant's "Transformation Process": recruiting, recruit training, cohesion, and sustainment. Semi-structured interviews were conducted with 43 female Marines. Eleven main themes emerged from the interviews, including: strong consensus that the partially-integrated, phased-approach to boot camp was beneficial to individual women and effective for the Marine Corps; progressive gender-integration enhances team-building and unit cohesion; the recruiting process prepares women for the physical, but not the emotional, challenges of boot camp; and the complete integration of women during the "sustainment" phase still requires substantial reinforcement. The study findings also suggest that Marine Corps leaders need additional training and education to understand and exemplify the complete "Transformation Process," to improve acceptance of women in the Marine Corps, and to improve military readiness.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Gender-Integration, Recruit Training, Marine Corps

AN ANALYSIS OF FEDERAL AIRPORT AND AIR CARRIER EMPLOYEE ACCESS CONTROL, SCREENING, AND TRAINING REGULATIONS

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Current Federal Aviation Regulations concerning civil aviation security are focused on countering the threat of a passenger hijacking a commercial airplane. Current media and government emphasis is focused on a passenger breaching security at an airport in the U.S. and not an employee breaching security. The security of the U.S. air travel industry from terrorist attacks hinges on an effective civil aviation security program. Government and aviation industry officials would greatly benefit from the revision of the current Federal Aviation Regulations concerning civil aviation security to address the issue of terrorism initiated by an employee.

This thesis provides a thorough examination of current Federal Aviation Regulations parts 107 and 108 sections concerning airport and air carrier employee access control, screening, and training. Based upon field research of five U.S. airports, the work furthermore analyzes related issues and problems associated with these regulations and generates recommendations that serve to enhance security for the traveling public, air carriers, and persons employed by or conducting business at public airports.

DoD KEY TECHNOLOGY AREA: Other (Civil Aviation Security)

KEYWORDS: Airport Security, Federal Aviation Regulation Part 107, Federal Aviation Regulation Part 108

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DEVELOPMENT OF SPREADSHEET MODELS FOR FORECASTING MANPOWER STOCKS AND FLOWS

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The computerized manpower planning models developed in this thesis were designed to be used by students taking the Manpower Personnel Models course, in the Manpower Systems Analysis Curriculum at the Naval Postgraduate School. The purpose of the course is to introduce students to some of the basic manpower modeling concepts and these models are the prime instruments toward achieving that goal. The models constructed using Microsoft Excel™ include a Markov Chain Model, a One Grade Vacancy model, a Multigrade Vacancy model with Non-Instantaneous Filling of Vacancies, and a Vacancy model with Instantaneous Filling of Vacancies.

The models are designed to be run on personal computers with a Microsoft Windows 95™ operating system. User's manuals and example problems are included for each model in the appendices.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training, Modeling and Simulation

KEYWORDS: Excel, Modeling, Markov, Vacancy, Replace, Manpower Planning, Personnel Flows, Spreadsheet Modeling, Manpower Forecast

A STUDY OF THE FEASIBILITY AND BENEFITS OF CONVERTING CERTAIN FLEET SUPPORT COMMUNITY BILLETS FROM MILITARY TO CIVILIAN

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The latest Quadrennial Defense Review (QDR) determined that the Department of Defense must reduce the amount of money it spends on infrastructure to recapitalize the armed forces. The QDR and the General Accounting Office (GAO) have identified the civilianization of military support billets as a means of cutting infrastructure spending. This thesis studied the Navy's Fleet Support Community (designator 1700) to determine the feasibility and potential savings of converting certain 1700 billets from military to civilian. Civilianization of billets would have a significant affect on the Fleet Support Community and, possibly, on the number of female Naval officers. This thesis explored options for the community's future and studied the impact changes might have on female officer manning. If the 628 billets this thesis identified as conversion candidates were civilianized, an annual savings of \$7.4 million would result. However, military and civilian personnel cannot be compared on the basis of cost only, other issues must be considered before any decision to civilianize billets could occur.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Fleet Support Community, Military to Civilian Conversion, Force Mix, Downsizing

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ASSESSMENT OF THE DIVERSITY COMPONENTS OF THE INTERMEDIATE OFFICER LEADERSHIP COURSE

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This thesis assesses the Navy Leadership Continuum Intermediate Officer Leadership Course (IOLC) based on the Valuing Differences model. The thesis identifies diversity components of the IOLC, describes the Valuing Differences model, surveys a sample of Department Head level Naval officers who attended an IOLC, and makes recommendations to help the Navy achieve its diversity goals.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Leadership Continuum, Intermediate Officer Leadership Course, Diversity Leadership, Diversity, Diversity Management, Managing Diversity, Diversity Training

THE EFFECTS OF ECONOMIC, MILITARY, POLITICAL, AND SOCIAL FACTORS ON THE SUCCESSFUL IMPLEMENTATION OF AN ALL-VOLUNTEER ARMED FORCE

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The end of the Cold War and a decline in public and political acceptance for military power has raised the questions in a number of nations over the continuing need for compulsory military service. This thesis, therefore, develops a conceptual model that shows the estimated effects of social, economic, political, and military variables on the successful implementation of an all-voluntary armed force. The research is based mainly on the experience of all-volunteer recruitment in the United States and Great Britain and recent trends elsewhere, especially in Western Europe. The main focus in this study is on economic considerations and the question about the fit between different key components in the military organization, the so-called "Military Design Factors." The model illustrates the open-system character of the military organization and highlights the close interrelationship between social, military, economic, and political elements in its environment. This thesis provides a basis for the design of a quantitative model that could be used to assess whether a specific country with compulsory military service possesses the conditions for successful conversion to an all-volunteer system.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Military, Economic, All-Volunteer Force

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JOINT STRATEGY AND STRATEGIC SEALIFT FOR THE NEXT CENTURY

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The President's National Security Strategy (NSS) calls for the U.S. military to "shape-respond-prepare" for a strategic environment that continues to advance U.S. interests. It also prescribes the necessity to move toward a more joint way of life. With increased emphasis on jointness, the Navy has made significant strides in becoming a partner with the other services. Not only are the services more joint, but so are the organizations participating in contractual agreements. One area where DoD and industry has increased their joint relationship is in the area of strategic sealift.

As the world's shipping industries have grown the U.S. industry has reduced by one third. This has presented DoD with a major dilemma. The current NSS calls for strategic sealift to support two simultaneous Major Regional Conflicts (MRC). The MSA of 1996 was passed by Congress to ensure supportability of U.S. forces overseas. VISA is an agreement to make intermodal shipping services and capacity available to DoD as required to support the emergency deployment and sustainment of U.S. military forces. It is accomplished by cooperation between DoD, Department of Transportation, and industry. This research presents an analysis of current policies and sealift capabilities in support of the two MRC scenarios.

DoD KEY TECHNOLOGY AREA: Surface/Under Surface Vehicles - Ship and Watercraft

KEYWORDS: Strategic Sealift, Maritime Security Act, Voluntary Intermodal Sealift Agreement, Jointness

THE AMMUNITION SUPPLY CHAIN AND INTERMODALISM: FROM DEPOT TO FOXHOLE

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The Department of Defense (DoD) has started a modernization effort to support the movement of ammunition and general cargo for contingency operations. This modernization effort includes the procurement of new intermodal containers, container handling equipment, port upgrades and agreements with commercial industry.

In order to understand how ammunition can be transported effectively and efficiently, the supply chain must be examined to identify choke points, limitations and shortfalls that occur during the ammunition movements from the depot to the "foxhole."

This thesis examines the issues affecting the ammunition supply chain within the DoD and the Defense Transportation System. Analysis and recommendations are provided to improve the transportation of ammunition through this system.

DoD KEY TECHNOLOGY AREAS: Materials, Processes, and Structures

KEYWORDS: Defense Transportation System, Intermodal Ammunition Transportation, Logistics

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SOCIOECONOMIC STATUS AND PERFORMANCE IN THE U.S. NAVY AND U.S. AIR FORCE

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Policymakers concerned about population representation in America's armed forces have frequently referred to the "unfair burden" of military service borne by young people from lower socioeconomic backgrounds. The purpose of this study was to examine the socioeconomic status (SES) of recruits in the Navy and Air Force and to analyze the relationship between a recruit's SES background and his or her performance in the military over time. Data for this study were obtained from three sources: the Department of Defense Survey of Recruit Socioeconomic Backgrounds (SES survey), Military Entrance Processing Command enlisted cohort files, and personnel data files provided by the Navy and Air Force. After merging these data files, the SES survey respondents were tracked longitudinally, and several analyses were undertaken to assess the relationship between SES and performance in the military. The results of this research show that recruits in both services come from slightly lower SES backgrounds than do youths in the general population; and, most of this difference can be explained by the fact that sailors and airmen are consistently underrepresented in the highest measures or correlates of SES and over represented in the lowest ones. Additionally, it was found that, while SES is not a strong predictor of first-term enlisted attrition in either service, it does explain differences in recruits' performance on-the-job in the Air Force. Further research is recommended, especially that which incorporates supervisors' ratings of military performance.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Socio-Economic Status, Performance USN, USAF

A STATISTICAL ESTIMATION OF NAVY ENLISTMENT SUPPLY MODELS USING ZIP CODE LEVEL DATA

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The Department of Defense has relied greatly upon active duty members assigned to recruiter positions to achieve enlistment goals. The Commander, Navy Recruiting Command (CNRC) is tasked with ensuring that Navy recruitment goals are attained in order to maintain the supply of personnel to support prescribed force size. This thesis will examine the Navy Recruiting Stations and their respective production of new contracts using zip code level data from the Standardized Territory Analysis Management (STEAM) database. The effect of individual level station attributes will be predicted using regression with new contract production as a function of recruiting station population statistics drawn from the STEAM database. A secondary purpose of this thesis is to determine if the interaction of the target recruiting population, the number of recruiters assigned to a market, and the presence of other armed forces recruiting stations in the same location have an effect on recruiting production. Both models showed that recruiter presence was the most important factor in attaining new

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contracts. Also, Navy contracts were positively related to other armed services recruiting production. This suggests complementarity. The county unemployment rate was positively related to Navy recruiting production, as were all race/ethnicity coefficients.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Recruiting, Manpower Supply

THE INFLUENCE OF DEMOGRAPHICS AND NAVY CAREER EXPERIENCES ON THE PERFORMANCE OF JUNIOR SURFACE NAVAL OFFICERS

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This thesis examines the relationship between pre-commissioning and post-commissioning characteristics and junior surface naval officer performance, retention, and promotion. The study uses data from the Officer Promotion History Files, (1981-1995). Data on 7,038 officers entering the Navy from 1976 to 1986 are analyzed. Results indicate that Naval Academy graduates, business majors, officers with CRUDES experience, and non-minority officers are more likely to achieve Surface Warfare qualification and receive top fitness report scores. NESEP and NROTC graduates, math majors, officers with CRUDES experience and top fitness reports, and minorities officers are more likely to stay in the Navy to the 04 promotion board. Academy graduates, engineering majors, officers with CRUDES experience, and officers with top fitness reports are more likely to promote to Lieutenant Commander. No significant difference is observed between minority and non-minority 04 promotion probabilities after pre-commissioning and post-commissioning factors are controlled. However, the effects of CRUDES experience, warfare qualification, and fitness report scores may lead to indirect effects which lead to observed performance and promotion rate differences between race/ethnic groups.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Surface Warfare Officer Performance, Retention, and Promotion

CIVILIAN HUSBANDS IN THE MILITARY FAMILY: CURRENT ISSUES AND FUTURE CONCERNS

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This thesis explores various issues confronting women officers and their civilian spouses. Population data are analyzed by officer pay grade and community to describe the increasing proportion of women officers in the Navy and Marine Corps who are married to civilians. Focused interviews were conducted with 32 female officers and their spouses. All interviews were taped and transcribed, from which 25 general themes emerged. These themes cover many topics relating to gender role conflicts, spouse employment challenges, career conflict, spouse support for the officer, and the officer's career intentions. Several conclusions are drawn from the research. It is noteworthy that a vast majority of civilian husbands have military experience. This experience is perceived by many interviewees as the key to the male spouse's ability to successfully cope with the challenges facing him as a trailing spouse or as a primary care-giver for children. For these officers, marriage to a civilian provides more flexibility and less stress than experienced previously when the spouse was also in the

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military. Most spouses believe the security and benefits derived from their wife's military career outweigh the disadvantages of their mobile lifestyle. Interview excerpts should offer valuable information to decision makers in the area of family support policy.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Civilian Husband, Military Family, Civilian Male Spouse, Stay-At-Home Care-Giver, Officer Retention, Gender Roles, Dual-Career

AN ANALYSIS OF THE EFFECTS OF ACCESSION SOURCE AS A PREDICTOR OF SUCCESS OF NAVY NURSE CORPS OFFICERS

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This study explores various avenues for entering the Navy Nurse Corps and analyzes whether accession source is a predictor of military career behavior. Military career behavior is defined as completing initial obligated service, retention beyond initial obligated service, and promotion to lieutenant commander. Specific accession pipelines examined are the Naval Reserve Officer Training Corps (NROTC), Nurse Commissioning Program (NCP), Medical Enlisted Commissioning Program (MECP), direct procurement, and now defunct sources to include the Health Services Commissioning Program (HSCP), Baccalaureate Degree Completion Program (BDGP), and Full-time Out-service Training (FTOST). Cohort files were developed at the Naval Postgraduate School (NPS) from the Navy Officer Master Files, historical Master Loss and Reserve Files maintained at the Defense Manpower Data Center (DMDC), and the Naval Medical Information Management Center's (NMIMC) Bureau of Medical Information System (BUMIS) database. A multivariate logit regression was used to examine the relationship between accession source and success measures. The empirical analysis indicates that accession source could be used to predict retention after developing a better fitting model. Further research should be conducted on more recent accession cohorts, using a more inclusive model, to assist the Navy Nurse Corps in the development and use of future accession programs.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Manpower Supply, Retention, Recruiting

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DISABILITY EVALUATION SYSTEM AND TEMPORARY LIMITED DUTY ASSIGNMENT PROCESS: A QUALITATIVE REVIEW

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The screening and management of services members with medical situations that render them non-deployable and unavailable for world-wide assignability is a key manpower and readiness issue. The Navy manages service members unable to perform their duties due to medical reasons utilizing both the Temporary Limited Duty Assignment process (TLD) and the Disability Evaluation System (DES). The objective of this thesis is to analyze the Temporary Limited Duty Assignment process and the Disability Evaluation System, identify process inefficiencies, compile a reference document and assess the impact on Force Structure and the Individuals Account. An in-depth review of the steps in each process is provided with timeline flow charts. This thesis analyzes the factors that contribute to the amount of time a service member spends in a transient and limited duty status. The thesis also identifies the primary claimants and their roles and responsibilities in each process and analyze the inter-relationship of TLD and DES. An extensive summary of findings is provided with recommendations for streamlining the processes to improve efficiency.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel and Training

KEYWORDS: Temporary Limited Duty, Disability Evaluation System, Physical Evaluation Board (PEB)

A STUDY OF THE SHIPMENT OF PRODUCE TO DEPARTMENT OF DEFENSE CUSTOMERS IN KOREA

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Master of Science in Management-March 1998

**Advisors: James Kerber, Department of Systems Management
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The Department of Defense (DoD), through the Defense Supply Center Philadelphia, procures and ships a variety of subsistence items to locations worldwide, including customers in the Western Pacific. Historic problems associated with shipments of perishable items include high transportation costs, spoilage, and irregular deliveries.

This thesis documents and analyzes the processes currently used for shipments of produce to various DoD customers in Korea. Recent innovations in information management, controlled atmosphere container technology, “push” logistics, and global sourcing are discussed in addition to other possible enhancements that could improve customer service and cost effectiveness.

DoD KEY TECHNOLOGY AREA: Clothing, Textiles, and Food

KEYWORDS: FFV, Transportation, Shipments

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THE IMPACT OF PAY ON NAVY PHYSICIAN RETENTION IN A HEALTH CARE REFORM ENVIRONMENT

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Master of Science in Management-March 1998

and

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Physicians are the most difficult health care professional group to retain on active duty beyond their first obligated tour. A major problem is the disparity between military and civilian physician income. In fiscal year 1997, the Department of the Navy spent approximately \$135 million in specialty pay on the Navy's 4,000 active duty physicians. Health care reform has altered the demand for specialty and primary care physicians, accelerating the movement toward managed care. In this thesis, the authors quantify the role of the pay differential using a multivariate logistic model and conclude that the civilian-military pay differential has a significant influence on the probability that a physician remains in the Navy. Physician personnel and earnings data were gathered from the Defense Manpower Data Center, the American Association of Medical Colleges, and the Hay Group. Results indicate that recent shifts in demand have resulted in a greater sensitivity of retention to pay for primary care physicians. Specialty specific elasticities can be applied to analyze the expected impact of pay on retention of representative pay plans. Increases in pay to the civilian median level would substantially increase retention, but would be costly. This changing military environment in union with health care reform may be cause for the Navy to re-evaluate its physician pay structure and examine options for the amount, attached obligation, and recipients of medical special pays.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Physician Compensation and Retention, Specialty Pay, Health Care Reform

A COMPARATIVE ANALYSIS OF GRADUATE MANAGEMENT EDUCATION

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Master of Science in Management-March 1998

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This thesis analyzes the top ten Master's of Business Administration (MBA) programs and top ten Public Management programs in the United States and has established a definition of quality in graduate management education in terms of programs offered, students selected, and faculty.

The top ten MBA and Public Management programs were then compared to the Master of Science (MS) in Management offered at the Naval Postgraduate School (NPS). With these comparative data, basic similarities and differences are identified between NPS and the selected programs. The structure of the MS in Management at NPS is similar to the MBA and Public Management curricula by requiring an extensive mission-related project (thesis), prior professional work experience, and learning through a team based orientation.

Keeping with its mission, the Department of Systems Management offers curricula that span programs from both MBA and Public Management. Because of this broader scope, the average length for the MS in Management at NPS is about two months longer than the average MBA and Public Management program. Additionally, the average total courses taken are

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the same as the average MBA program but six more than the average Public Management program. Students at NPS are selected based on academic and leadership ability instead of GMAT and GRE scores used at the selected schools. Finally, the faculty are a civilian and military mix whose goal is to produce quality graduates to fill subspecialty billets for the DoD.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Graduate Management Education, Master of Business Administration, Public Management

A STATISTICAL ANALYSIS OF THE DETERRENCE EFFECTS OF THE MILITARY SERVICES' DRUG TESTING POLICIES

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Master of Science in Management-March 1998

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Rosalie Liccardo Pacula, University of San Diego

This thesis examines the magnitude of the deterrence effect associated with the military services' drug testing policies. Using data from the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel and the 1995 National Household Survey on Drug Abuse, illicit drug use rates are modeled as a function of pertinent demographic characteristics.

The natural variation in drug testing policies is exploited to estimate the deterrence effects of such programs. The first analysis relies on the variation in drug testing policies among the military services. The second analysis relies on the difference in the extent of drug testing between the military and civilian sectors. Non-linear maximum likelihood (logit) techniques are used to estimate the deterrence effects.

The results indicate a significant deterrence effect associated with the frequency and intensity of the services' drug testing program both in comparison to each other and in comparison to the civilian sector. However, omission of price and income controls may have caused overestimation of the true deterrence value. Further study using more sophisticated techniques is recommended to clarify this potential bias.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training, Modeling and Simulation

KEYWORDS: Manpower Policy Analysis, Demographic Modeling, Illicit Drug Use, Alcohol Use, Tobacco Use

A STATISTICAL ANALYSIS OF THE DETERMINANTS OF NAVAL FLIGHT OFFICER TRAINING ATTRITION

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Master of Science in Management-March 1998

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The purpose of this thesis is to identify factors that lead to Naval flight officer (NFO) training attrition. Data was compiled on student NFO cohorts who entered between 1991 and 1996. A multinomial logit model is specified with the dependent variable categorized into four outcomes: attrition for performance failure of the individual, attrition for medical reasons, dropping on request and passing aviation training. Independent variables utilized in the model include commissioning source, race, and undergraduate major. The statistical analysis sought to determine the effect of each of these demographic factors on the probability of attrition by reason.

The results show that commissioning source has a significant effect on attriting for performance failure and dropping on request. United States Naval Academy graduates had the lowest attrition rates for these reasons, followed by ROTC then

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OCS graduates. Caucasian student NFOs had the lowest attrition rates among the race categories. Undergraduate major also affects attrition behavior with technical majors succeeding (earning wings) at a slightly higher rate than non-technical undergraduate majors.

DoD TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: NFO, Training, Attrition

THE NAVY'S DELAYED ENTRY PROGRAM: A STUDY OF THE EFFECTIVENESS OF PREPARING RECRUITS FOR BASIC TRAINING

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Master of Science in Management-March 1998

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In FY-97, over 14 percent of all recruits who entered basic training attrited and nearly one-third of these were due to motivational problems. Could adequate training in the Navy's Delayed Entry Program (DEP) provide the necessary tools to prepare recruits for basic training and reduce attrition? This thesis examines the DEP's effectiveness in preparing recruits for basic training. It examines: how well the recruits were prepared; the types of training conducted; how effectively the recruits perceived their training to be while in the DEP; use of the DEP Personnel Qualification Standards (PQS); DEP meetings; and required recruiter/recruit weekly contact. Recruits at basic training were surveyed on various questions that pertained to their time in the DEP. The findings showed that training is not being conducted in the DEP. DEP PQS is not utilized as a primary training guide. Over one-third of the recruits sampled indicated that they were not told what to expect at basic training. Finally, over one-third of the recruits felt that the DEP did not prepare them for basic training. Recommendations were made to improve training in the DEP.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Delayed Entry Program, DEP, Attrition, Basic Training, United States Navy, Training, Great Lakes, Recruit Training Center, Commander Navy Recruiting Command, Pre-entry Level Training, Realistic Job Preview, ICW

THE EFFECT OF COLLEGE SELECTIVITY, GRADES, AND MAJOR ON-THE-JOB PERFORMANCE OF OFFICERS IN THE U.S. NAVY

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Master of Science in Management-March 1998

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Numerous studies in the civilian sector have documented a positive relationship between college selectivity, college major, and college grade point average and job performance. This thesis investigates if such a relationship exists in the United States Navy from a sample of Officer Candidate School (OCS) officers. The OCS sample was divided into separate operational and staff officers. Two measures of performance were employed in the models: (1) promotion to Grade 04, and (2) the percentage of evaluations an officer was recommended for early promotion (RAP'd) from Grade 01 through Grade 03.

The results supported the hypothesis that for OCS operational officers, college selectivity has a positive impact on officer performance. Collegiate grade point average also showed a positive relationship. College major results showed a slight advantage for business/management majors in the promotion model, and a negative impact for staff officers with

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technical majors in the evaluation model. Females performed better than their male counterparts under these performance measures. Minorities received fewer evaluations RAP'd, but were not statistically affected at the Grade 04 promotion board.

DoD KEY TECHNOLOGY AREAS: Manpower, Personnel, and Training

KEYWORDS: Navy Officer Performance, Navy Officer Candidate School, College Quality

AN ANALYSIS OF FACTORS THAT INFLUENCE ENLISTMENT DECISIONS IN THE U.S. ARMY

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The purpose of this thesis is to analyze factors that influence decisions to enlist in the U.S. Army. This thesis uses 1997 New Recruit Survey data from the Army Recruiting Command and examines new recruits who contracted between October 1, 1996 and September 30, 1997, but had not yet entered basic training. This study employs cross-tabulations and a Multi-Nomial Logit model, using PROC CATMOD, to analyze the data. The results show that recruits who differ in gender, ethnicity, past status, educational expectations, years of service, and contact initiation are influenced to enlist by different factors. Educational incentives, especially the Army's College Fund, and self-development, including "to do something I can be proud of," are given as the most important reasons to enlist. Recruiters and friends are the most influential sources of information about the Army, and TV advertisements are the most influential sources in the mass media. Key barriers to enlistment are the perceptions that service in the military is a serious obstacle to educational progress, followed by military life, and conflicting interests. Immediate family members, especially parents, are key influencers in the enlistment decision. The results suggest that the Army should strive to improve its image and service environment, as well as continue to sustain enlistment incentives and resources at an adequate level.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Recruiting, Enlistment Reason, New Recruit Survey, Multi-Nomial Logit Model, Enlistment Incentive, Advertisement, Key Barriers, Key Influencers

THE IMPACT OF FULLY-FUNDED GRADUATE EDUCATION AND RESIDENT JOINT PROFESSIONAL MILITARY EDUCATION ON AVIATOR PROMOTION AND COMMAND SELECTION

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Master of Science in Management-March 1998

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Gregory E. Hildebrandt, Department of Systems Management

The purpose of this thesis is to examine the impact that Fully-Funded Graduate Education (FFGE) and Joint Professional Military Education (JPME) have on aviator promotion to the ranks of commander and captain and on selection for command. This thesis accurately measures their impact by incorporating new measures of performance, namely good jobs. These two proxies for performance were developed to help capture those unmeasurable characteristics that do not show up on Officer Fitness Reports. This study examines officers appearing before the 1988-1994 commander and captain promotion boards. Two separate Logit models are used to estimate the effects of these educational opportunities on promotion both before and after the start of the drawdown. Separate Logit regression models for command screen are also specified for these two time periods. Model results indicate that FFGE had a significant positive impact on commander selection and

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a significant negative impact on command selection in the pre-FY90 period. The impact of JPME was significant and positive for promotion to commander in both periods and for command screen in the pre-FY90 period. Joint Duty Assignment had a significant and negative impact on command selection in both periods. The results of these models may reflect changes in the policies of the aviation community toward FFGE and JPME as well as differences in the officers who choose the educational opportunity. This thesis provides evidence of difficulties in combining FFGE, JPME and JDA in an aviation career.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Aviator, Education, JPME

THE EFFECT OF MILITARY SERVICE AND SKILL TRANSFERABILITY ON THE CIVILIAN EARNINGS OF VETERANS

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This thesis analyzes the effect of military service on the civilian earnings of veterans. It specifies and estimates log-earnings models to obtain the impact of: (1) veterans' status, (2) transferability of military-acquired skills, and (3) length of service. Data from the 1992 Reserve Components Survey was used to develop a matched comparison group analysis between veterans (reservists with between two and twenty years of active service) and nonveterans (reservists with less than two years of active service). The results indicate a small negative effect of veterans' status on both male and female veterans' earnings. When examined separately by branch of service, male Army veterans suffered earnings penalties, male Navy veterans experienced no earnings differentials, and male Air Force and Marine Corps veterans received earnings premiums. Female Navy veterans suffered earnings penalties, with no differentials noted for female veterans of the other branches. Examining earnings by reserve component revealed that male Army Reserve, Army National Guard, Naval Reserve, and Air Force Reserve members received earnings penalties with no differentials noted for Air National Guard or Marine Corps Reserve veterans. Veterans of all services, with the exception of the Army, benefited from having transferable military skills. Length of active duty service had no significant impact on veterans' earnings.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Veterans, Post-Service Earnings, Military Service, Military Training, Transferability, Earnings Function, Human Capital, Reserve Component

AN ANALYSIS OF INSTITUTIONAL AND NON-INSTITUTIONAL FACTORS AFFECTING NAVAL AVIATOR RETENTION

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Julie Dougherty, Department of Systems Management

The objective of this thesis is to quantitatively examine the effect of several institutional and non-institutional factors that have traditionally impacted Naval aviator retention. It uses a unique database that includes summarized continuation rate information for pilots from each sub-community by year group and commissioning source. The effects of varying unemployment rates, air transportation industry hiring rates, aviation continuation pay (ACP) opportunities, and changing mini-

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imum service requirement (MSR) policies are measured statistically to determine their relative significance in impacting aviator continuation rates. The study analyzed the continuation rate behavior between 1990 and 1996 for aviators in year groups 1984 through 1989. Results from the statistical analysis indicate that institutional factors such as changing MSR policies and ACP availability have a greater impact than non-institutional factors such as unemployment rates and air transportation industry hiring rates. Specifically, recent changes in MSR policies have been successful in increasing continuation rates while ACP has not been successful in increasing retention.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Aviator Retention, Continuation Rates

A CASE STUDY: ACQUISITION REFORM AND THE NEW V-22 OSPREY PROGRAM

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Master of Science in Management-March 1998

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Second Reader: Sandra M. Desbrow, Department of Systems Management

This thesis provides background information on the once-cancelled V-22 program and acquisition reform and then examines the impact of the latter on the former. It analyzes the V-22 program using DoD's "ten guiding principles of acquisition reform" as a standard and concludes that acquisition reform is having mixed results on this Major Defense Acquisition Program.

Much is being accomplished with acquisition reform in the V-22 program. A transformation of the business process from the top down is enabling the program office and its prime contractors to optimize cost, schedule, and performance. Earned value management metrics are actively being incorporated into the program's risk management process. Concurrent contractor/Government testing and maintenance reduces test time required by 72 percent. Cross-functional IPTs, as the backbone of the program, are breaking down "stove pipes" and facilitating concurrent engineering. Successfully implementing initiatives like CAIV and CLS and focusing on overall cost of ownership are reducing the cost of the program from cradle to grave. Commercial products and processes, like the Allison AE-1107C engine and CATIA software, are providing high quality systems at market controlled prices. Commercial item acquisition and CLS are being used effectively to minimize life-cycle costs. "Win-Win" contracting with industry is providing engine reliability that should improve with time and save 30 percent in support costs.

Much can be accomplished still. Realistic contingency funding should be included in fiscal budgets to eliminate the migration of funds from R&D and PROC to O&S. SPI should be altered to pass any program-related savings back to the program office.

DoD KEY TECHNOLOGY AREA: Air Vehicles

KEYWORDS: Acquisition Reform, V-22 Osprey

ANALYSIS OF DEPARTMENT OF DEFENSE (DOD) TRANSPORTATION MODE STRATEGIES FOR SHIPPING FRESH FRUITS AND VEGETABLES (FFV) TO GUAM

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Master of Science in Management-March 1998

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Kevin Gue, Department of Systems Management

The objective of this thesis is to identify the Department of Defense (DoD) transportation mode alternatives used to ship fresh fruits and vegetables (FFV) to Guam, to discuss which alternatives provide the highest service level in terms of

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prolonging FFV shelf life under what circumstances, and to identify those additional considerations that affect shelf life during transportation. The entire transportation process from the Continental United States (CONUS) through final delivery to the customer is documented and analyzed, and recommendations for its improvement included.

DoD KEY TECHNOLOGY AREA: Materials, Processes, and Structures

KEYWORDS: Shipment of Fresh Fruits and Vegetables, Guam, Controlled Atmosphere Shipping, Transportation, Perishables

INVESTIGATION OF INTEGRATED PRODUCT AND PROCESS DEVELOPMENT (IPPD): A CASE STUDY OF THE MARINE CORPS ADVANCED AMPHIBIOUS ASSAULT VEHICLE (AAAV)

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Both Industry and Government Executives agree that collocation is a successful method of organizing Integrated Product Teams (IPTs) for Integrated Product and Process Development (IPPD). While some research has addressed benefits and challenges of implementing collocated-IPTs within Government and Industry organizations, there is a lack of clarity on specific benefits and challenges of collocated-IPTs in a team-based organization. This study examines full-time members' views of collocation regarding the Marine Corps' Advanced Amphibious Assault Vehicle's (AAAV's) program. The AAAV program is the first major defense acquisition program (MDAP) in the Department of Defense (DoD) to collocate all appropriate full-time employees representing the Government Civilian, General Dynamics—the Contractor, subcontractors, and Marines—the customer. Research methods used to gather data consisted of phone and face-to-face interviews, and a survey. The interviews solicited elaboration on two main issues: specific examples of benefits and challenges of collocation. The survey identified the impact of collocation on specific management processes. Findings show collocation as having a positive impact with strongest areas including: "identifying potential problems," "liaison with customer," and "reducing project cycle time." The results suggest lessons to expand the benefits of collocation on AAAV's performance, and offers a benchmark for other programs implementing collocated-IPTs.

DoD KEY TECHNOLOGY AREA: Human Systems Interface

KEYWORDS: AAAV Collocation of IPTS

STUDY OF NAVY AND MARINE CORPS PRISON INMATES AFFILIATED WITH GANGS AND EXTREMIST GROUPS: TRENDS AND ISSUES FOR ENLISTMENT SCREENING

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Martin F. Wiskoff, Defense Personnel Security Research Center

This thesis examines self-identified gang members and extremists incarcerated in Navy and Marine Corps brigades and disciplinary barracks. Information was gathered from interviews conducted with inmates. The interviews focused on several key issues, including reasons for enlisting in the Navy and Marine Corps; truthfulness with recruiters concerning certain illegal activities prior to enlistment, including juvenile arrests and convictions; the nature and severity of crimes for which members were convicted, including links with gangs or extremist groups; and reasons for lack of assimilation and acculturation into military service.

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This thesis also provides background information on present enlistment screening procedures, current Department of Defense policies concerning gangs and extremist groups, and demographic data on the characteristics of self-admitted gang members who are incarcerated in a Navy brig. Common themes that emerged from the interviews are presented, and selected summaries are included in an appendix. In addition, the study examines enlistment screening procedures for identifying applicants who have gang or extremist group affiliations and recommends a number of areas for further research.

DoD TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Recruiting, Manpower Supply

NAVY RECRUIT TRAINING AS A GENDERING PROCESS

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This thesis studies Navy recruit training as a gendering process, and it examines female and male recruits' gendered experiences at Recruit Training Command (RTC) Great Lakes, Illinois. Gender is a prominent social construct for individuals and organizations. Both individuals and organizations are gendered and create gender. The phrase, "gendering process," refers to an organization's production of gender. The primary research question is: Can the military socialization experience of Navy recruit training be understood as a gendering process, specifically as a process for producing masculinity? A psychometric inventory of gender role attributes, the Bem Sex Role Inventory (BSRI), was used to measure the difference in starting and ending recruits' self assessment of femininity and masculinity. Results from the BSRI indicated that Navy recruit training is a gendering process for both female and male recruits. Structured interviews with RTC officer and enlisted personnel provided additional insight into the gendering nature of the military socialization experience of Navy recruit training. These results offer a powerful, analytical lens for viewing and assessing such personnel processes as attrition, retention, promotion, and occupational selection for women and men in the Navy. They also provide a useful framework for understanding the status of women and men in the Navy.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Gender, Basic Training, Recruit Training, Women in the Military

A COST-BENEFIT ANALYSIS OF POWER QUALITY MANAGEMENT IN THE AVIONICS REPAIR FACILITY

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Master of Science in Management-March 1998

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Keebom Kang, Department of Systems Management

This thesis focuses on improved aviation readiness and reductions in pipeline investment and repair costs brought about by a power quality management program. Using cost-benefit analysis, it isolates the effects of an implemented program at an Aircraft Intermediate Maintenance Department in order to quantify and compare the costs of implementation and the benefits gained. Specific attention is given to reduction of repair cost of Automatic Test Equipment, and reduction of repair Turn-Around-Time of repair processes utilizing Automatic Test Equipment. The analysis identified three-year savings of up

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to \$1,135,134 through the application of a power quality management program at one repair location. The analysis demonstrates the savings achievable from the management of power quality in processes using sensitive electrical equipment.

DoD KEY TECHNOLOGY AREA: Electronics

KEYWORDS: Electronics, Repair Turn-Around-Time, Cost-Benefit Analysis

BARGAINING TACTICS AND STRATEGY IN A GOVERNMENT/CONTRACTOR BILATERAL MONOPOLY

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Master of Science in Management-March 1998

Advisor: David V. Lamm, Department of Systems Management

Second Reader: Katsuaki L. Terasawa, Department of Systems Management

The purpose of this research is to examine potential bargaining strategies and tactics which might be used to respond to an offer perceived as unfair or unreasonable from a sole source offeror. Initially, a sole source offeror normally has considerable bargaining leverage over the Government. Pricing data needed to properly evaluate the seller's quotation may be incomplete, inaccurate, or unavailable. Urgent and compelling need may require accelerating the procurement process.

Using bargaining theory and the classic economic paradigm of bilateral monopoly as a foundation for the research, potential bargaining strategies and tactics were evaluated through a survey of 62 Department of Defense contracting specialists.

A primary conclusion of the research is that attaining a bargaining agreement that reflects a fair and reasonable price under bilateral monopoly conditions is not possible unless the Government possesses adequate information to accurately assess the fairness and reasonableness of the offered price.

DoD KEY TECHNOLOGY AREA: Other (Acquisition and Contract Management)

KEYWORDS: Bargaining Theory, Bargaining, Negotiations, Strategy, Tactics, Bilateral Monopoly, Sole Source Contracts, Purchasing, Contracting

A DECISION SUPPORT SYSTEM FOR THE LOCATION OF NAVAL SURFACE RESERVE UNITS

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Master of Science in Management-March 1998

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This thesis analyzes the process needed to evaluate potential Naval Reserve unit locations from the perspective of cost, manpower, support for the active Navy, and Reserve facility support capability. The research suggests the feasibility of a PC-based Decision Support System to assist Commander, Naval Surface Reserve Force improve the effectiveness and efficiency of the unit location decision.

A comparative decision model was developed based on Multi-Attribute Utility Theory. Design of a Spatial Decision Support System was proposed to incorporate a commercial mapping engine, the formal unit location decision model, and a commercial decision model solver. Since the proposed Decision Support System can provide flexibility, increase the

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number of decision factors considered, and reduce decision processing time, software development and construction of a Reserve unit Decision Support System prototype is recommended.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Decision Support System, Naval Reserve Unit Location

CIVIL RESERVE AIR FLEET ENHANCEMENT PROGRAM: A STUDY OF ITS VIABILITY IN TODAY'S ENVIRONMENT

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Master of Science in Management-March 1998

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Susan P. Hocevar, Department of Systems Management

During the 1970s and 1980s, there existed a gap between the strategic mobility requirement and the nation's cargo airlift assets to meet this requirement. Consequently, the Military Airlift Command (MAC) developed and implemented the Civil Reserve Air Fleet Enhancement Program (CEP) to bridge this gap. Civilian airlines were given monetary and other incentives to modify their existing wide-body passenger aircraft enabling them to carry military-sized cargo in the event of military necessity. This study examines the National Defense Airlift System, the concept behind the CEP's development and reasons for its failure. It also discusses whether the current military, Congressional, and airline environments are conducive to a revitalization of the CEP. It was determined that the current environments do not favor a re-birth of the CEP. However, if a CEP were deemed necessary to meet a potential future gap in the strategic mobility requirement, actions could be taken by MAC, Congress, and airlines to aid its success. Some of these actions are: developing adequate incentives enticing airline participation, ensuring even distribution of enhanced aircraft among CEP participants, investigating use of medium-sized aircraft, investigating benefits of placing financial liens on enhanced aircraft, and reducing Civil Reserve Airfleet (CRAF) activation concerns among participants.

DoD KEY TECHNOLOGY AREA: Other (Strategic Mobility)

KEYWORDS: Civil Reserve Air Fleet, CRAF, CRAF Enhancement Program, Strategic Mobility, Defense Transportation

THE IMPACTS OF ACADEMIC BACKGROUND ON SUBMARINER PERFORMANCE, RETENTION, AND PROMOTION

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William R. Bowman, Department of Economics, United States Naval Academy

This thesis analyzes the relationship between pre-commissioning academic background and submarine officer performance. Four measures of officer performance are used: (1) probability of completing the nuclear training pipeline; (2) probability of receiving an early promotion recommendation on greater than 75 percent of LT fitness reports; (3) probability of remaining in the Navy for 10 years of commissioned service (until the 04 board); and (4) probability of promoting to Lieutenant Commander. Navy Promotion History files, Officer Data Cards, Fitness Report files, and Loss files are used to statistically analyze the impacts of college grades and major, college quality, and commissioning source on submariner performance and retention. Non-linear maximum likelihood techniques are used to estimate the four performance models. The findings reveal that good grades and engineering majors have a significant positive impact on all four-performance measures includ-

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ing retention. There are exceptions among OCS graduates. Grades have an insignificant effect on the probability of completing the training pipeline and of remaining in the Navy until the 04 board. Also, non-technical majors are more likely to remain in the Navy than engineering majors. United States Naval Academy (USNA) graduates fare best on all performance measures with the exception of completing the training pipeline. ROTC graduates generally fare better than OCS graduates. Among ROTC and OCS graduates, greater college selectivity leads to higher performance but lower retention rates for OCS graduates. There is no difference in retention rates for ROTC graduates with respect to college selectivity.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Submarine Officer Performance, Retention, and Promotion

THE IMPACT OF WEB TECHNOLOGY ON CUSTOMER INFORMATION FLOW

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Customer and employee surveys indicate that the Naval Postgraduate School's Housing Welcome Center is stymied by an information bottleneck at the junction of its counselors and customers. Incoming classes decry housing for its poor communication and lack of information. Housing counselors, ever aware of customer satisfaction, spend too much time transacting routine information rather than helping families solve unique problems. This study examines how World Wide Web technology can widen the bottleneck of poor communications between counselor and customer so as to facilitate both information transactions and problem solving. To provide an analysis of the effectiveness in meeting housing customer needs, this study gauges housing customer satisfaction and determines those elements that customers believe constitute a great housing office. An employee survey, a counselor focus group, and archival research further demonstrate the dichotomy between where effort is expended and where it is needed. Customer communication and information expectations cannot be met under the current system. Analysis of qualitative and quantitative data demonstrate that the NPS Housing Welcome Center can overcome its information bottleneck by exploiting the technological advances of the World Wide Web and becoming a hub of information resources.

Dod KEY TECHNOLOGY AREA: Computing and Software

KEYWORDS: World Wide Web, WWW, Customer Service

BATTLE STATIONS: AN ANALYSIS OF DESIGN, DEVELOPMENT, IMPLEMENTATION, AND TRAINING EFFECTIVENESS

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Since the implementation of the Battle Stations program in July 1996 into the recruit training pipeline at Recruit Training Center Great Lakes, it has received much publicity and many accolades from notable military and civilian leaders. They claim that Battle Stations has advanced recruit training further and has met the changing cultural environment of recruits and the Navy better than any other training program in recent history. The Navy also declares Battle Stations as a rite of passage for Sailors, similar to the Marine Corps' recruit training event, The Crucible. This thesis examines the creation, implementation, and outputs of the Battle Stations program to determine its overall effectiveness as a training program and as a rite of passage. Literature reviews on instructional systems design and rites of passage were conducted to compare it to

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the Battle Stations program. As a result, Battle Stations was determined to be questionable as a functional training program with little background research performed on design and implementation rationale, and minimally effective as a rite of passage. The Navy should conduct a formal training analysis utilizing models and criteria presented in this thesis to properly determine what changes should be conducted or even if a Battle Stations-type program is needed to meet the Navy's boot camp concerns.

DoD KEY TECHNOLOGY AREA: Manpower, Personnel, and Training

KEYWORDS: Battle Stations, Training, Manpower Policy Issues, Leadership

